APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,934	12/20/2001	Yunbiao Wang	HAL 193	2568

39170 7590 07/08/2005	EXAMINER
HITACHI AMERICA, LTD.	HARPER, V PAUL

	ART UNIT	PAPER NUMBER
	2654	

HITACHI AMERICA, LTD.
50 PROSPECT AVENUE
LEGAL DEPT.
TARRYTOWN, NY 10591

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		10/027,934	WANG, YUNBIAO
		Examiner	Art Unit
		V. Paul Harper	2654

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-21_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _3/12/2002_.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The Examiner has considered the references listed in the Information Disclosure

Statement dated 03/12/2002.   A copy of the Information Disclosure Statement is

attached to this office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.   In this claim the phrase "and is that the first condition is

absent" is unclear.

The following rejections are made based on a reasonable interpretation of the

claim language.

Claim Objections

3.   Claim 7 is objected to because on line 5 the word "sith" is spelled incorrectly.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-4, 8-10, 14, 15 and 17 are rejected under 35 U.S.C. 102(b) as being

anticipated by Roberts (US Patent 4,829,578), hereinafter referred to as Roberts.

Regarding **claim 1**, Roberts discloses a speech detection and recognition

apparatus for use with background noise of varying levels. Roberts' disclosure

includes the following:

- calculating power of a portion of the input signal (abstract; col. 2, lines 22-25; col. 4,

lines 56-60; calculating amplitude level from portions of audio);

- comparing the power of the portion of the input signal with a reference level

(abstract; col. 2, lines 35-45, compare the amplitude);

- when said comparing satisfies a first condition, generating an activation signal (col.

2, lines 38-45; level indicates the presence of speech);

- when said comparing satisfies a second condition, setting the reference level a

predetermined amount higher than the calculated power (abstract; background level is

used to alter detection thresholds; Fig. 10; adjust threshold); and

- repeating said steps for each of successive portions of the input data signal

(abstract; repeated calculation).

Regarding **claim 2**, Roberts teaches everything claimed, as applied above (see

claim 1). In addition, Roberts teaches "the second condition is different from the first

condition and is that the first condition is absent for a predetermined time period for

successive portions of the input data signal (col. 2, lines 35-49; successive time

periods; multiple thresholds).

Regarding **claim 3**, Roberts teaches everything claimed, as applied above (see

claim 2). In addition, Roberts teaches the following:

• dividing the input signal into a succession of voice signal frames (abstract; col. 4,

lines 56-60);

• processing the input signal on a frame by frame basis (abstract; col. 4, lines 56-60;

Figs, 3a and 3b); and

• wherein the first condition is that the input signal is at least higher than the

reference level to determine the presence of speech (col. 2, lines 64-68).

Regarding **claim 4**, Roberts discloses a speech detection and recognition

apparatus for use with background noise of varying levels. Roberts' disclosure

includes the following:

• defining a time period (abstract; col. 2, line 63-66);

• comparing an input signal with a reference level for a portion of the input signal (col.

2, lines 63-67);

- when said comparing satisfies a condition, generating an activation signal and then repeating said comparing (col. 2, lines 61-67; generating a start-of-speech indication); and

- when said comparing does not satisfy the condition repeatedly and successively for the time period, changing the reference level to a function of the input signal and then repeating said comparing (abstract; col. 2, line 65 through col. 3, line 5; background level is used to alter detection thresholds; Fig. 10; adjust threshold).

Regarding **claim 8**, Roberts teaches everything claimed, as applied above (see claim 4). In addition, Roberts teaches the follwing:

- prior to said steps, initializing a time period as the predefined time and initializing the reference level as a threshold between assumed noise and the valid signal (Fig. 6; INITIALIZE_VARIABLES; col. 2, line 61 through col. 3, line 5; a given length of time);

- calculating a level of the input signal (col. 4, lines 56-65);

- performing said step of generating when said step of comparing determines that the level of the input signal is substantially higher than the reference level (col. 2, lines 63-67);

- resetting the time period when said step of comparing determines that the level of the input signal is substantially higher than the reference level, prior to performing said step of repeating (col. 3, predetermined amount of time before start of speech, inherently reset upon detection of speech);

- said changing step calculating a new reference level as a function of the signal level (abstract, background moving average is used to alter ... detection thresholds).

Regarding **claim 9**, Roberts discloses a speech detection and recognition apparatus for use with background noise of varying levels. Roberts' disclosure includes the following:

- a reference node to provide a reference signal (abstract; col. 2, lines 35-45, thresholds);

- a comparator operatively coupled to said nodes to compare the input signal with the reference signal and to provide a control when a compared relation between the input signal and the reference signal satisfies a condition (abstract; col. 2, lines 35-45, compare the amplitude; level indicates presence of speech);

- a first generator coupled to said comparator and controlled by said comparator to generate an activation signal in response to the control (col. 2, lines 38-45; level indicates the presence of speech); and

- a timer control coupled to said comparator and determining elapsed time when the control is continuously and repeatedly absent, and in response to the elapsed time exceeding a reference, outputting a time control (col. 3, lines 1-5; time periods before and after speech); and

- a second generator coupled to said timer control, generating the reference signal to said reference node and dynamically changing a level of the reference signal in

response to the time control (abstract, background moving average is used to alter ..

detection thresholds).

Regarding **claim 10**, Roberts teaches everything claimed, as applied above (see

claim 9). In addition, Roberts teaches "said second generator generating the reference

signal as a function of the input signal" (abstract, background moving average is used

to alter ... detection thresholds, the average is inherently a function of the input signal).

Regarding **claim 14**, Roberts teaches everything claimed, as applied above (see

claim 1). In addition, Roberts teaches "[a] computer readable storage media having

computer readable code implementing a method for activation that is dynamically

adaptive to a level of noise mixed in the input signal, the code including statements for

performing the method of claim 1" (col. 5, lines 55-65).

Regarding **claim 15**, Roberts teaches everything claimed, as applied above (see

claim 2). In addition, Roberts teaches : "[a] computer readable storage media having

computer readable code implementing a method for activation that is dynamically

adaptive to a level of noise mixed in the input signal, the code including statements for

performing the method of claim 2" (col. 5, lines 55-65).

Regarding **claim 17**, Roberts teaches everything claimed, as applied above (see

claim 4). In addition Roberts teaches "[a] computer readable storage media having

computer readable code implementing a method for activation that is dynamically

adaptive to a level of noise mixed in the input signal, the code including statements for

performing the method of claim 4" (col. 5, lines 55-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 5-6, 11-13, 16 and 18-21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Roberts in view of Basburg-Ertem et al. (US Patent Application

Publication 2002/0041678 A1), hereinafter referred to as Basburg-Ertem.

Regarding **claim 5**, Roberts teaches everything claimed, as applied above (see

claim 4). In addition, Roberts teaches:

- calculating power of the input signal (col. 4, lines 56-65; calculates the energy

amplitude);

- said comparing step comparing calculated power with the reference level (col. 2,

lines 60-65; amplitude of the audio signal is on a certain side of the threshold);

- said changing step setting the reference level substantially higher than the

calculated power (Fig. 9);

But Roberts does not specifically teach "activating transmission of the input signal in response to the activation signal." However, the examiner contends that this concept was well known in the art, as taught by Basburg-Ertem.

In the same field of endeavor, Basburg-Ertem teaches a method for noise reduction. Basburg-Ertem's teachings include the use of a voice activity detector where a determination is made of the presence of speech in every frame to support discontinuous transmission (¶[0022]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Roberts by specifically providing the features, as taught by Basburg-Ertem, because it is well known in the art at the time of invention for the purpose of implementing discontinuous transmission (Basburg-Ertem, ¶[0022]).

Regarding **claim 6**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 5). In addition Roberts teaches:

- dividing the input signal into a succession of voice signal frames (col. 4, lines 56-70);

- processing the input signal on a frame by frame basis (Fig. 5, item 323);

- said calculating and comparing steps being repeated in order for each of the voice signal frames (abstract, repeated calculation);

- wherein the condition is that the power of the input signal is at least higher than the reference level to determine the presence of speech (col. 2, lines 38-45; level indicates the presence of speech); and

- said changing step setting the reference level relative to the input signal power (abstract; background level is used to alter detection thresholds; Fig. 10; adjust threshold).

But Roberts does not specifically teach "said activating transmission being on a frame by frame basis." However, as stated in the rejection of claim 6, this is taught by Basburg-Ertem (¶[0022]).

Regarding **claim 7**. The method of claim 4, for voice activated speech transmission that is dynamically adaptive to a level of noise mixed with valid speech in the input signal, said method further comprising:

- dividing the input signal into a succession of voice signal frames (abstract; col. 4, lines 56-60);

- repeating said comparing in order for each of the voice signal frames (abstract; col. 4, lines 56-60; Figs, 3a and 3b);

- calculating a level of the input signal for a single current frame prior to each step of comparing (abstract; repeating, col. 2, lines 64-68);

- said comparing step comparing the level of the input signal with the reference level (abstract; col. 2, lines 35-45, compare the amplitude);

- said changing step setting the reference level as a function of the level of the input signal (abstract, background moving average is used to alter ... detection thresholds).

But Roberts does not specifically teach "activating transmission of a frame of the input signal in response to the activation signal; and processing the input signal with a codec on a frame by frame basis." However, the examiner contends that these concepts were well known in the art, as taught by Basburg-Ertem.

In the same field of endeavor, Basburg-Ertem teaches a method for noise reduction. Basburg-Ertem's teachings include the use of a voice activity detector in an encoder where a determination is made of the presence of speech in every frame to support discontinuous transmission (¶[0022]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Roberts by specifically providing the features, as taught by Basburg-Ertem, because it is well known in the art at the time of invention for the purpose of implementing discontinuous transmission (Basburg-Ertem, ¶[0022]).

Regarding **claim 11**, Roberts teaches everything claimed, as applied above (see claim 10). In addition, Roberts teaches:

- a calculator coupled to said input node to determine input signal power for a frame of the input signal (abstract; col. 2, lines 22-25; col. 4, lines 56-60; calculating amplitude level from portions of audio);

- said comparator comparing the input signal power with the reference level and providing a control when the input signal level substantially exceeds the reference level (col. 2, lines 38-45; level indicates the presence of speech).

But Roberts does not specifically teach "a transmitter transmitting the input signal in response to the control." However, the examiner contends that this concept was well known in the art, as taught by Basburg-Ertem.

In the same field of endeavor, Basburg-Ertem teaches a method for noise reduction. Basburg-Ertem's teachings include the use of a voice activity detector where a determination is made of the presence of speech in every frame to support discontinuous transmission (¶[0022]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Roberts by specifically providing the features, as taught by Basburg-Ertem, because it is well known in the art at the time of invention for the purpose of implementing discontinuous transmission (Basburg-Ertem, ¶[0022]).

Regarding **claim 12**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 11). In addition, Roberts teaches "each of said calculator, comparator and transmitter operating on a frame by frame basis for successive frames of the input signal" (abstract; repeated calculation).

Regarding **claim 13**, Roberts discloses a speech detection and recognition

apparatus for use with background noise of varying levels. Roberts' disclosure

includes the following:

• means for providing a succession of activation signals indicating speech by

comparing power of corresponding successive frames of an input signal with a

reference noise power threshold (see rejection of claim 1).

• means for dynamically changing the reference noise power threshold when no

activation signal is provided for a substantial predefined continuous time period

representing a plurality of successive frames (abstract; background level is used to

alter detection thresholds; Fig. 10; adjust threshold).

But Roberts does not specifically teach "means for transmitting the frames

successively in response to successive ones of the activation signals." However, the

examiner contends that this concept was well known in the art, as taught by Basburg-

Ertem.

In the same field of endeavor, Basburg-Ertem teaches a method for noise

reduction. Basburg-Ertem's teachings include the use of a voice activity detector where

a determination is made of the presence of speech in every frame to support

discontinuous transmission (¶[0022]).

Therefore, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify Roberts by specifically providing the

features, as taught by Basburg-Ertem, because it is well known in the art at the time of

invention for the purpose of implementing discontinuous transmission (Basburg-Ertem, ¶[0022]).

Regarding **claim 16**, Roberts teaches everything claimed, as applied above (see claim 3). In addition, Roberts teaches "[a] computer readable storage media having computer readable code implementing a method for voice activated speech transmission that is dynamically adaptive to a level of noise mixed with valid speech in the input signal, the code including statements for performing the method of claim 3." (col. 5, lines 55-65; also see the rejection for claim 5 for "voice activated speech transmission").

Regarding **claim 18**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 5). In addition, Roberts teaches "[a] computer readable storage media having computer readable code implementing a method for data transmission that is dynamically adaptive to a level of noise mixed with valid data in the input signal, the code including statements for performing the method of claim 5" (col. 5, lines 55-65).

Regarding **claim 19**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 6). In addition, Roberts teaches "[a] computer readable storage media having computer readable code implementing a method for voice activated speech transmission that is dynamically adaptive to a level of noise

mixed with valid speech in the input signal, the code including statements for performing the method of claim 6" (col. 5, lines 55-65).

Regarding **claim 20**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 7). In addition, "[a] computer readable storage media having computer readable code implementing a method for voice activated speech transmission that is dynamically adaptive to a level of noise mixed with valid speech in the input signal, the code including statements for performing the method of claim 7" (col. 5, lines 55-65, also see the rejection for claim 5 for "voice activated speech transmission").

Regarding **claim 21**, Roberts in view of Basburg-Ertem teaches everything claimed, as applied above (see claim 8). In addition, Roberts teaches "[a] computer readable storage media having computer readable code implementing a method for data transmission that is dynamically adaptive to a level of noise mixed with valid data in the input signal, the code including statements for performing the method of claim 8" (col. 5, lines 55-65, also see the rejection for claim 5 for "method for data transmission").

Citation of Pertinent Art

6.   The following prior art made of record but not relied upon is considered pertinent

to the applicant's disclosure:

*   Li et al. (US Patent 6,381,570) teach an adaptive two-threshold method for

discriminating noise from speech in a communications signal.

*   May, Jr (US Patent 4,277,645) discloses a multiple variable threshold speech

detector.

*   Supplee et al. (US Patent 6,381,568) disclose a method of transmitting speech using

discontinuous transmission and comfort noise.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to V. Paul Harper whose telephone number is (571) 272-

7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

06/30/2005

V. Paul Harper
Patent Examiner
Art Unit 2654